



Norfolk Naval Shipyard & St Juliens Creek Annex Portsmouth, Virginia 2023 Consumer Confidence Report

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For additional information:

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Water Quality Division
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Virginia Department of
Health
757-683-2000
[http://www.vdh.virginia.gov/
drinking-water/](http://www.vdh.virginia.gov/drinking-water/)

USEPA Safe Drinking Water
<http://www.epa.gov/safewater/>

NNSY Public Works
Department Environmental
757-641-4370

The source of NNSY drinking water includes four surface lakes (Kilby, Meade, Cahoon, and Speight's Run) and five deep wells in the Middle Potomac Aquifer.



Norfolk Naval Shipyard (NNSY) is committed to providing you drinking water that is safe and reliable. NNSY believes that providing you with accurate information about your water is the best way to assure that it is safe. There were no drinking water violations to report for 2023.

Each year, the Consumer Confidence Report (CCR) is required to be distributed by July 1st of the current year. This CCR is a snapshot of the quality of your drinking water in 2023. The purpose of this annual report is to advise consumers of where their water comes from, provide water quality data, advance greater understanding of drinking water, and heighten awareness to conserve water resources.

NORFOLK NAVAL SHIPYARD SOURCE WATER

NNSY purchases finished water from the City of Portsmouth. Portsmouth's water supply comes from a system of four surface lakes (Kilby, Meade, Cahoon, and Speight's Run) and five deep wells in the Middle Potomac Aquifer. From these lakes and wells, the water is pumped through pipes to a water treatment facility which has the capacity to treat 33 million gallons of water each day and serves over 120,000 customers in Portsmouth, Chesapeake and Suffolk. Water treatment chemicals are added to the water causing small solid particles to clump together and sink to the bottom of a settling basin. The water is then filtered to remove bacteria, algae, and other impurities. Finally, the water is disinfected with chloramines to kill any remaining bacteria. "The Source Water Assessment is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area, and a determination of the water supply's susceptibility to contamination by the identified potential sources. According to the Source Water Assessment, our water system had a susceptibility rating of "medium" where the drinking water is potentially most susceptible to agriculture, urban, and forestry runoff. However, we have not detected any contaminants from these sources in our drinking water. If you would like to review the Assessment, please contact the City of Portsmouth's office at 757-539-2201, ext 222."

ABOUT DRINKING WATER

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Substances (referred to as contaminants) in source water may come from septic systems, discharges from domestic or industrial wastewater treatment facilities, agricultural and farming activities, urban storm water runoff, residential uses, and many other types of activities. Water from surface sources is treated to make it drinkable while groundwater may or may not have any treatment.

Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, which may be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may come from gas stations, urban storm water runoff, and septic systems.

Radioactive contaminants, which may be naturally occurring, or the result of oil and gas production and mining activities.

ABOUT DRINKING WATER (continued)

In addition to these contaminants, all lakes and streams contain algae, which are microscopic plants that can cause taste and odor problems in drinking water. All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained at <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) establishes limits for contaminants in bottled water, which must provide the same protection for public health.



Who needs to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune systems disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available at <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>.

Kidney dialysis patients should consult with their health care providers or dialysis centers in order to take special precautions when using chloraminated water. Fish owners should be sure chloramines are removed from the water before it is used in aquariums or ponds. Many pet stores sell water conditioners for chloraminated water.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. The primary source of Lead in drinking water is materials and components associated with service lines and home plumbing. NNSY is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components in buildings. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes or until it becomes cold or reaches a steady temperature before using water for drinking or cooking. If you have questions about your water, please contact NNSY Environmental at 757-641-4370. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800-426-4791) or at <http://www.epa.gov/safewater/lead>.

DEFINITIONS AND ABBREVIATIONS

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The table on the following pages shows the results of monitoring for 2020. In the tables and elsewhere in this report you may find many terms and abbreviations which you are not familiar. The following definitions are provided to help you better understand these terms:

- **Action Level (AL)** - The concentration of a contaminant that, if exceeded, triggers treatment or other requirements which a water system must follow. For lead and copper monitoring, compliance is based on the 90th percentile value.
- **Level 1 Assessment** – A Level 1 assessment is a study of the waterworks to identify potential problems and determine, if possible, why total coliform bacteria have been found in our waterworks.
- **Level 2 Assessment** – A level 2 assessment is a very detailed study of the waterworks to identify potential problems and determine, if possible, why an *E. Coli* PMCL violation has occurred and why total coliform bacteria have been found in our waterworks on multiple occasions.
- **Maximum Contaminant Level (MCL)** - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.
- **Maximum Contaminant Level Goal (MCLG)** - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Maximum Residual Disinfectant Level (MRDL)** - The highest level of a disinfectant allowed in drinking water based on running annual average. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants. For chlorine and chloramines, a waterworks is in compliance with the MRDL when the running annual average of monthly averages of samples taken in the distribution system, computed quarterly, is less than or equal to the MRDL.
- **Maximum Residual Disinfectant Level Goal (MRDLG)** - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
- **Minimum Reporting Limit (MRL)**- **The smallest measured concentration of a substance that can be reliably measured by using a given analytical method.**
- **NA** – Not applicable
- **Nephelometric Turbidity Unit (NTU)** – A measure of the clarity, or cloudiness, of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity is monitored because it is a good indicator of the effectiveness of the filtration system.
- **Non-detection (ND)** – Laboratory analysis indicates that the contaminant is not present.
- **Picocuries per liter (pCi/L)** - A measure of the radioactivity in water.
- **Parts per million (ppm) or Milligrams per liter (mg/L)** – A measurement of the amount of contaminant per unit of water. A part per million is one cent in \$10,000 or one minute in two years.
- **Parts per billion (ppb) or Micrograms per liter (ug/L)** – A measurement of the amount of contaminant per unit of water. A part per billion is like one cent in \$10,000,000 or one minute in 2,000 years.
- **Secondary Maximum Contaminant Level (SMCL)** – Non-enforceable standard that is established for aesthetic considerations
- **Treatment Technique (TT)** - A required process intended to reduce the level of a contaminant in drinking water.

WATER QUALITY DATA

The tables below list only those contaminants that were present in your drinking water at levels detectable by laboratory equipment. Unless otherwise noted, the data presented in these tables is from testing done in 2023. We are required to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. The EPA sets the Maximum Contaminant Levels (MCLs) and the Maximum Contaminant Level Goals (MCLGs) as listed in the tables. The Regulated Substances Table and the Unregulated Substances Table are provided for your information and as required by the Consumer Confidence Rule.

Table 1. 2023 WATER QUALITY TABLE-City of Portsmouth (Water treatment Plant Samples)

Regulated Substances	Unit	MCLG	MCL	Amount Detected	Range	Meets EPA Standards	Possible Source of Contamination
Barium	ppm	2	2	0.030	NA	Yes	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chloramines	ppm	4	4	3.7	2.0-4.0	Yes	Water additive used to control microbes
Fluoride	ppm	4	4	0.8	0.63-1.08	Yes	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Total Organic Carbon	ppm	NA	TT	1.88	1.50-2.35	Yes	Naturally present in the environment
Radiological Data	Unit	MCLG	MCL	Amount Detected	Range	Meets EPA Standards	Notes and Possible Source of Contamination
Alpha Emitters ¹ (tested in 2021)	pCi/L	0	15	0.36+/-0.65	NA	Yes	Erosion of natural deposits
Beta/Photon Emitters ² (tested in 2021)	pCi/L	0	50	1.4+/-1.3	NA	Yes	Decay of natural and man-made deposits
Combined Radium ³ (tested in 2021)	pCi/L	0	5	1.67+/-0.73	NA	Yes	Erosion of natural deposits
Turbidity	Unit	MCLG	MCL	Amount Detected	Range	Meets EPA Standards	Possible Source of Contamination
Turbidity	NTU	NA	TT	0.08	0.03-0.08	Yes	Soil Runoff
Turbidity (Lowest monthly percent of samples meeting limit)	NTU	NA	TT	100	NA	Yes	Soil runoff
1 Footnote for City of Portsmouth: Gross Alpha MRL=3.0 results fell in range of 1.5+/- 1.2 pCi/L with a minimum detectable activity(MDA95) of 1.1 pCi/L. Meaning the concentration can be counted with a precision of plus or minus 100% at the 95% confidence level. 2 Footnote for City of Portsmouth: Gross Beta MRL=4.0 results fell in range of 0.69 +/- 1.83 with a minimum detectable activity(MDA95) of 1.9 pCi/L. Meaning the concentration can be counted with a precision of plus or minus 100% at the 95% confidence level. 3 Footnote for City of Portsmouth: Combined Radium MRL=0.56 results fell in range of 0.57 +/- 0.56 with a minimum detectable activity(MDA95) of 0.45 pCi/L. Meaning the concentration can be counted with a precision of plus or minus 100% at the 95% confidence level. Radium-226 MRL =1.0 with a MDA =0.45pCi/L with range of 0.47 +/-0.41pCi/L, Radium-228 MRL =1.0 with a MDA=0.56 pCi/L with range of 1.2+/- 0.6. MRL is the USEPA Minimum Reporting Level, used to provide the smallest measure concentration of contaminant that may be reliably reported by the lab using a given analytical method. 4 Treatment Technique is a drinking water requirement established in lieu of an MCL, typically used when setting an MCL would be too difficult or when compliance with an MCL would be too costly.							

Secondary and Unregulated Monitored Substances	Unit	SMCL	Amount Detected	Range	Likely Source
Aluminum	ppb	200	0.014	NA	Erosion of natural deposits; residual from surface water treatment processes
Chloride	ppm	250	20	NA	Runoff/leaching from natural deposits
Sulfate	ppm	250	63	46-98	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids (TDS)	ppm	500	240	219-284	Runoff/leaching from natural deposits
pH (acidity)	pH units	6.5-8.5	7.5	7.0-7.9	Naturally occurring
Sodium ¹	ppm	NA ⁴	69	39-75	Natural in environment; also from use of chemicals at water treatment plant
4 For physician-prescribed "no salt diets" a limit of 20 ppm is suggested.					

Other Regulated Substances	Unit	Amount Detected	Range	Typical Source
Alkalinity	ppm	87	60-108	Naturally Occurring
Calcium Hardness	ppm	21	16-28	Naturally present in sedimentary rock.
Calcium	ppm	9	6-11	Naturally present through the leaching of calcium rocks.
Conductivity	umhos/cm	357	327-395	Naturally Occurring
Corrosion Index	Corrosivity units	-1.14	-1.46- -0.91	Naturally or industrially-influenced balance of hydrogen, carbon, and oxygen in the water; Affected by temperature and other factors
Hardness	ppm	26	20-34	NA
Orthophosphate	ppm	0.39	0.31-0.50	Naturally occurring in rocks and other materials

*The substances listed above are not regulated by the EPA; however, this information is provided as a service to our customers.

Table 2. 2023 Water Quality Table- Norfolk Naval Shipyard (Distribution System Samples)

Lead and Copper Monitoring*	Unit	MCLG	AL	Samples above AL	Amount Detected (90 th Percentile)	Range	Meets EPA Standards	Possible Source of Contamination
Lead (2021 data)	ppb	0	15	2	1	ND-409	Yes	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (2021 data)	ppm	1.3	1.3	0	0.299	0.024 – 0.931	Yes	Corrosion of household plumbing systems; Erosion of natural deposits
Residual Disinfectants & Disinfection By Products	Unit	MCLG	MCL	Highest Level	Range	Meets EPA Standards	Possible Source of Contamination	
Haloacetic Acids (HAA5)	ppb	NA	60	23.00 ¹	0-36	Yes	Drinking water disinfectant by-product	
Trihalomethanes (TTHM)	ppb	NA	80	35.9 ¹	15.1-43.1	Yes	Drinking water disinfectant by-product	
Total Chlorine Residual	ppm	² 4	³ 4	⁴ 1.3	0.1 –4.1	Yes	Drinking water disinfectant	

¹The highest levels found for TTHM and HAA5 were the highest running annual averages found at each of the sample sites for each of the four quarters in 2023. The range is the highest and the lowest values found in the individual samples. The range is the highest and lowest values found in the individual samples;

²MRDLG; ³ MRDL, ⁴ This number is the highest running annual average of quarterly compliance samples for the 2023 calendar year; for Total Chlorine Residual, the highest running annual average was determined by calculating quarterly values which were based on monthly compliance samples.

UCMR4 (2019 data)	Unit	Amount Detected	Range Low-High	Typical Source
HAA5	ppb	16.87	0.715 – 41.9	By-product of drinking water disinfection
HAA6Br	ppb	5.06	0-10.89	By-product of drinking water disinfection
HAA9	ppb	21.89	0.715 – 51.237	By-product of drinking water disinfection
Manganese	ppb	4.1	0.855 -13.0	Naturally Occurring

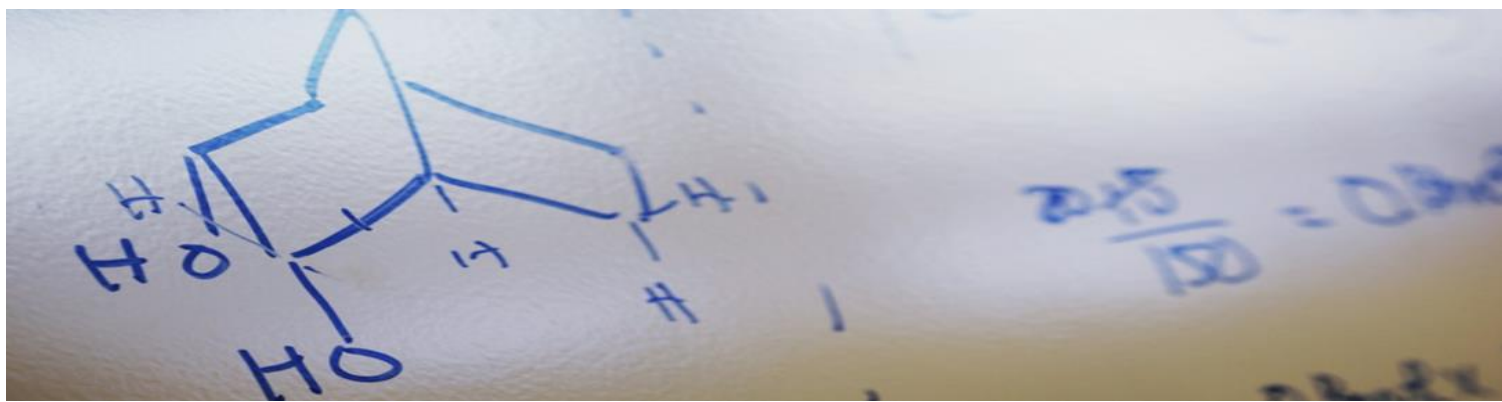
*This monitoring provides a basis for future regulatory actions to protect public health. One other metal, three alcohols, three other semivolatile chemicals, ten cyanotoxin chemicals, and eight pesticides and one pesticide manufacturing byproduct were also monitored, but these contaminants detected levels were less than their USEPA's set Minimum Reporting Levels (MRL). The MRL is used to provide the smallest measured concentration of contaminant that may be reliably reported by the lab using a given analytical method.

Table 3. 2023 WATER QUALITY TABLE - ST. JULIENS CREEK ANNEX (Distribution System Samples)

Lead and Copper Monitoring	Unit	MCLG	AL	Samples above AL	Amount Detected (90 th Percentile)	Range	Meets EPA Standards	Possible Source of Contamination
Lead (2021 data)	ppb	0	15	0	2 ²	ND – 2	Yes	Corrosion of household plumbing systems; Erosion of natural deposits

Copper (2021 data)	ppm	1.3	1.3	0	0.290 ²	0.062 – 0.324	Yes	Corrosion of galvanized pipes; Erosion of natural deposits
Residual Disinfectants and Disinfection By Products	Unit	MCLG	MCL	Highest Level	Range (Individual Results)	Meets EPA Standards	Possible Source of Contamination	
Haloacetic Acids (HAA5)	ppb	NA	60	13.00 ¹	7-21	Yes	Drinking water disinfectant by-product	
Trihalomethanes (TTHM)	ppb	NA	80	37.0 ²	26.4-42.3	Yes	Drinking water disinfectant by-product	
Total Chlorine Residual	ppm	4 ⁶	4 ³	1.0 ⁴	0.1-3.1	Yes	Drinking water disinfectant	

¹The highest levels found for TTHM and HAA5 were the highest running annual averages found at each of the sample sites for each of the four quarters in 2023. The range is the highest and the lowest values found in the individual samples. ²MRDLG; ³MRDL; ⁴This number is the highest running annual average of quarterly compliance samples for the 2023 calendar year; for Total Chlorine Residual, the highest running annual average was determined by calculating quarterly values which were based on monthly compliance samples.



PFAS

What are per- and polyfluoroalkyl substances and where do they come from?

Per- and polyfluoroalkyl substances (PFAS) are a group of thousands of man-made chemicals. PFAS have been used in a variety of industries and consumer products around the globe, including in the United States, for decades. Due to their widespread use and environmental persistence, most people in the United States have been exposed to certain PFAS. PFAS have been used to make coatings and products that are used as oil and water repellents for carpets, clothing, paper packaging for food, and cookware. They are also contained in some foams (aqueous film-forming foam or AFFF) used for fighting petroleum fires.

Is there a regulation for PFAS in drinking water?

On April 10, 2024, the US EPA established MCLs for a subset of PFAS chemicals.

Compound	Final MCLG	Final MCL (enforceable levels)
PFOA	Zero	4.0 parts per trillion (ppt) (also expressed as ng/L)
PFOS	Zero	4.0 ppt
PFHxS	10 ppt	10 ppt
PFNA	10 ppt	10 ppt
HFPO-DA (commonly known as GenX Chemicals)	10 ppt	10 ppt
Mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS	1 (unitless) Hazard Index	1 (unitless) Hazard Index

EPA requires implementation of sampling in accordance with the new MCLs within three years of the publication date and implementation of any required treatment within five years. These limits did not apply for the 2023 calendar year because they had not been published. However, the DoD proactively promulgated policies to monitor drinking water for PFAS at all service owned and operated water systems at a minimum of every two years. The DoD policy states that if water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than the 2016 EPA health advisory (HA) level of 70 ppt, water systems must take immediate action to reduce exposure to PFOS or PFAS. For levels less than 70 ppt but above the 4 ppt level (draft at the time of policy publication), DoD committed to planning for implementation of the levels once EPA's published MCLs take effect.

What about the EPA's 2022 interim Health Advisories or proposed regulations?

EPA issued interim Health Advisories for PFOS and PFOA in 2022. However these newer levels are below quantifiable limits (i.e., below detection levels). EPA is expected to issue a proposed regulation on PFAS drinking water standards for public comment in the next few months. DoD looks forward to the clarity that a nationwide regulatory standard for PFOS and PFOA in drinking water will provide.

In anticipation of this EPA drinking water regulation and to account for emerging science that shows potential health effects of PFOS and PFOA at levels lower than 70 ppt, DoD is evaluating its efforts to address PFAS in drinking water, and what actions we can take to be prepared to incorporate this standard,

such as reviewing our current data and collecting additional sampling where necessary. DoD remains committed to communicating and engaging with our communities throughout this process.

Has Norfolk Naval Shipyard/St Julien's Creek Annex tested its water for PFAS?

Yes, In June 2019 the City of Portsmouth samples were collected from Deep Wells 1 and 2. We are pleased to report that drinking water testing results were below the Method Reporting Limit (MRL) for all 29 PFAS compounds covered by the sampling method, including PFOA and PFOS. This means that PFAS were not detected in your water system. In accordance with DoD policy, the water system will be resampled every three years for your continued protection.

VIOLATIONS AND EXCEEDANCES

There were no drinking water violations to report for 2023 for NNSY and St Julien's Creek Annex.

QUESTIONS? Please contact PWD NNSY Environmental staff at 757-641-4370 if you have any questions regarding this report. To access this report electronically, please visit the Commander, Navy Region Mid-Atlantic website at:

<https://cnrma.cnrc.navy.mil/Operations-and-Management/Environmental-Support/Drinking-Water-Quality-Information/>